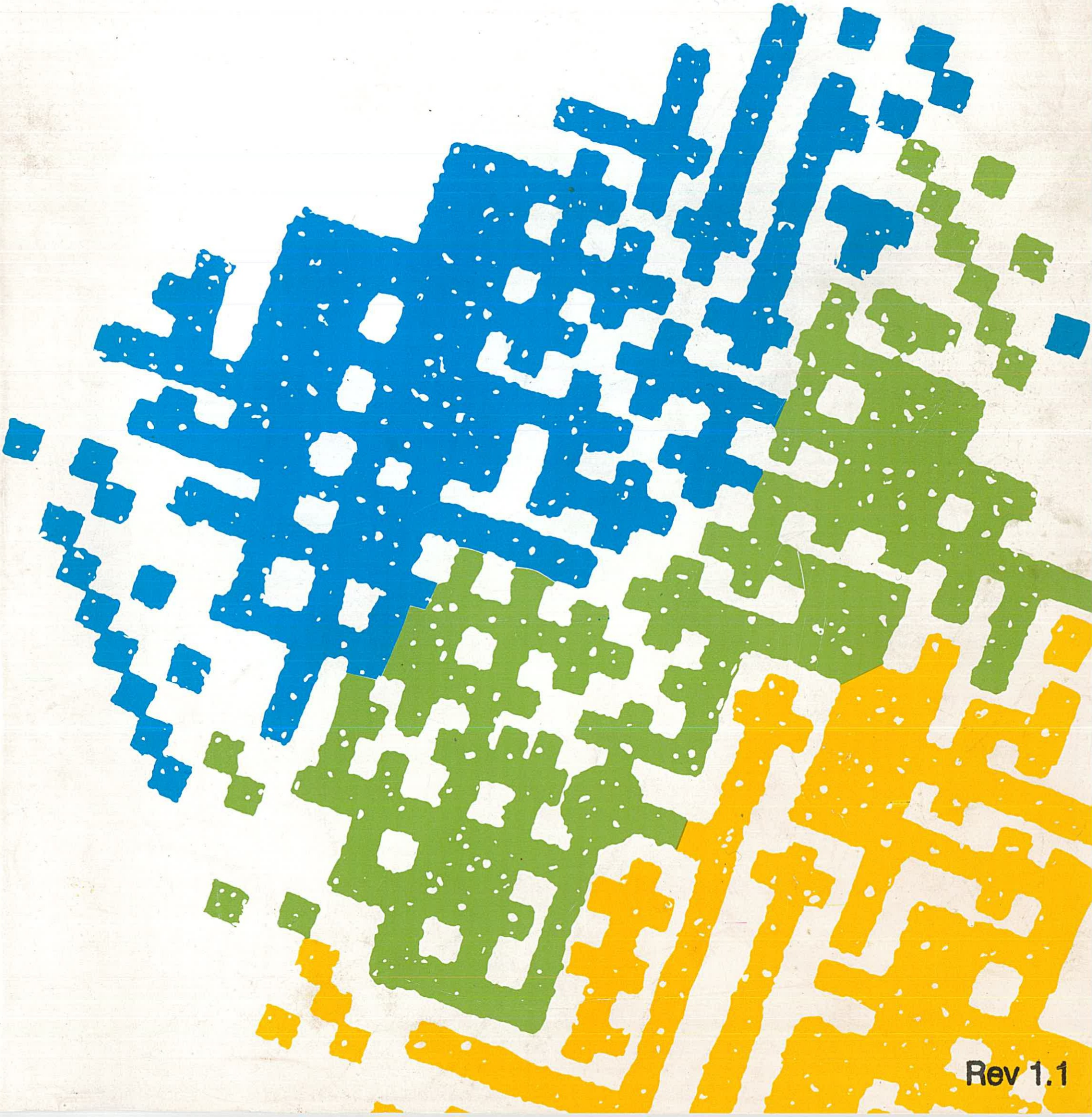
USER'S MANUAL

AN4 GREEN 486 MAIN BOARD



Rev 1.1

Preface

VL-Bus™ introduction

What is Local Bus ?

Local Bus is the bus of address, data and control signals that are directly or indirectly connected to the host CPU to achieve the same clock rate with the host CPU. The industry standard ISA bus fixed the clock rate at 8MHz which is only sufficient for 16-bit 80286 CPU's environment. But for high clock(33,40,50,and 66 MHz) and high data bandwidth (32, 64 bit) CPU, ISA bus became a critical bottle-neck. Therefore, it is necessary to create a new industry bus structure to increase the total system performance. That is why the Local Bus is getting so popular!!

What is VL-Bus ?

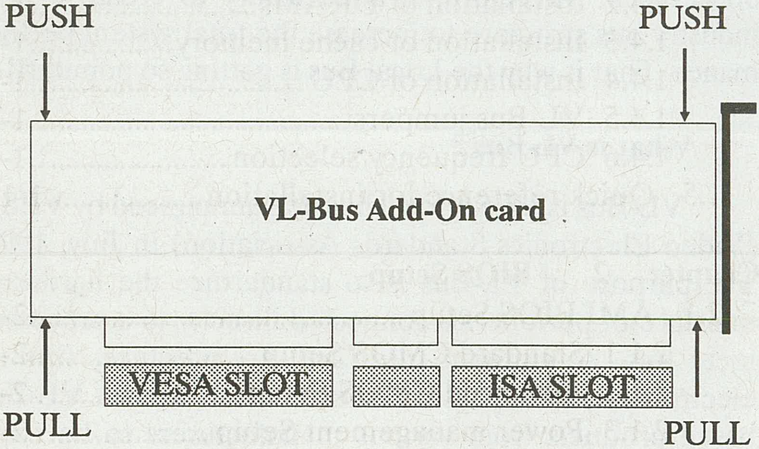
VL-Bus is VESA local bus. It's announced by VESA (Video Electronics Standards Association) in July, 1992. The purpose of VL-Bus is to standardize the hardware interface of peripherals connected directly to a processor local bus. A uniform interface, architecture, timing, electronical, and physical specification allows VL-Bus based products from various manufacturers to be completely interchangeable.

What are the advantages of VL-Bus?

To increase the performance of peripheral devices, many motherboard manufacturers developed their own local bus architecture, but they are incompatible with each other. The VESA VL-Bus specification was created to end this confusion, VL-Bus can dramatically increase the speed of I/O-bound peripherals and it will be a standard of local bus.

!! IMPORTANT !!

To avoid the damage of the VL-Bus slots, please be careful when you insert/remove the VL-Bus Add-on cards. To insert/remove the card, you should PUSH/PULL the both edges of the card in uniform force.



High Performance Cache 486 VESA Mainboard

USER'S MANUAL

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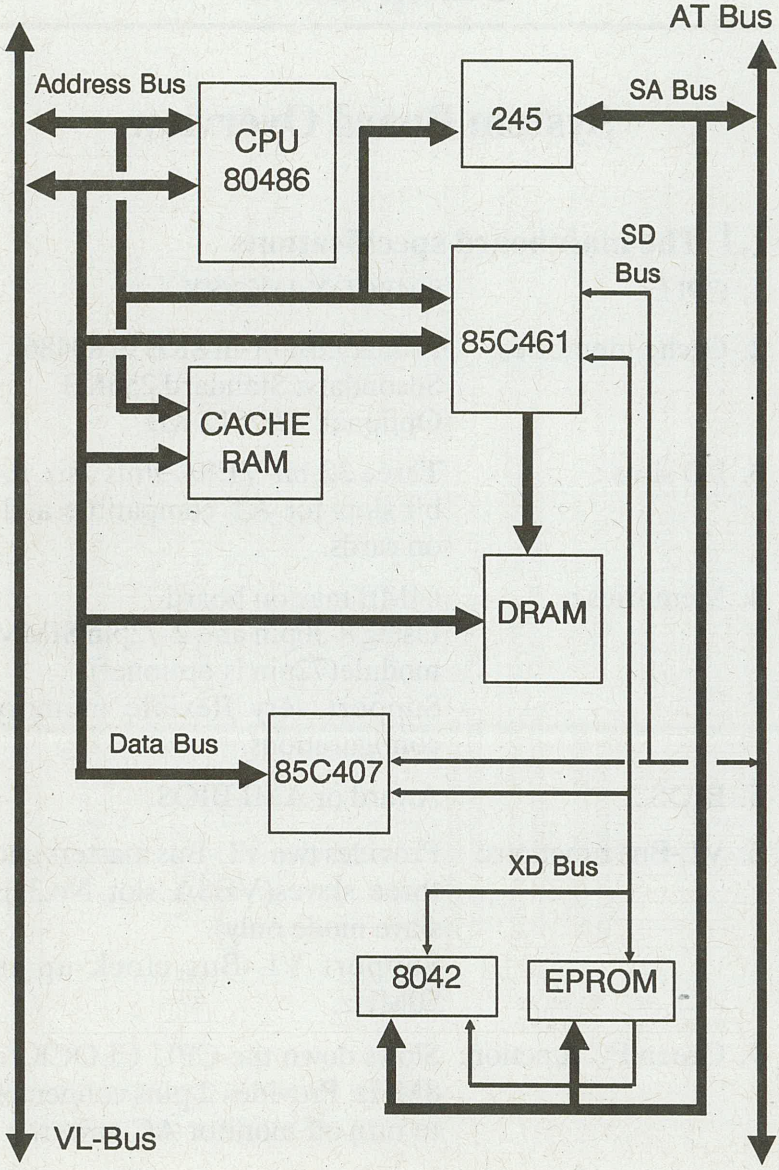
Chapter 1

System Board Overview

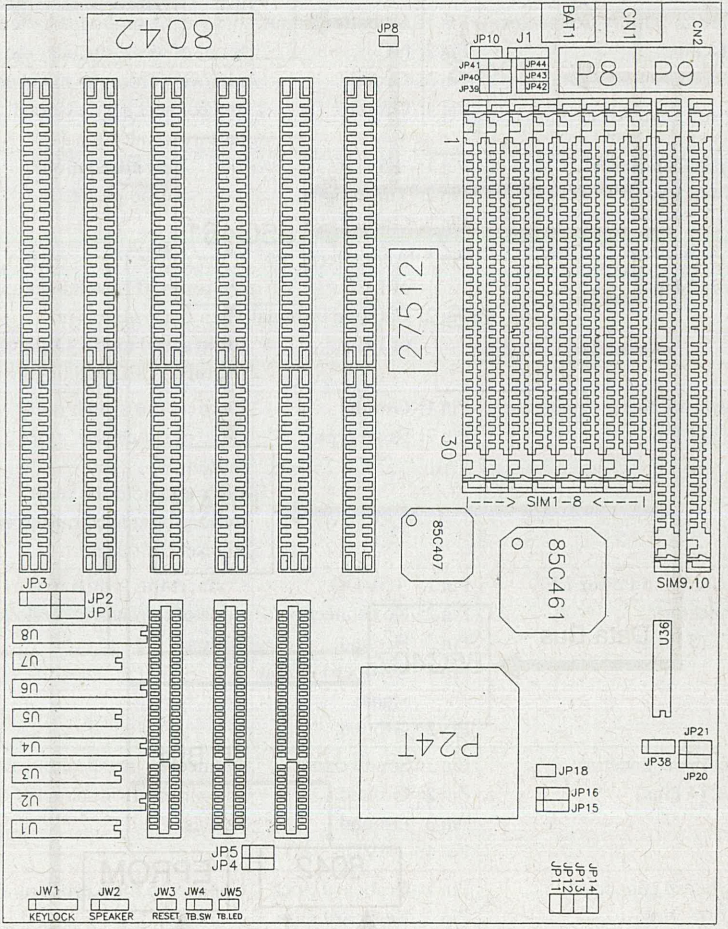
1.1 The mainboard specifications

1. CPU:	80486 DX/DX2/SX
2. Cache memories:	Primary: Built-in 8KB in 80486 Secondary: Standard 256KB Optional: 128/512 KB
3. I/O slots :	Three 32-bit VESA slots , six 16-bit slots for AT compatible add-on cards.
4. Memories :	64MB max on board Using 8-30pin and 2-72pin SIMM module(72pin is optional). Support very flexible memory configurations.
5. BIOS :	Award or AMI BIOS.
6. VL-Bus functions:	Provides two VL-Bus masters and three slaves(VESA slot No.3 is slave mode only). Support VL-Bus clock up to 50MHz.
7. Green PC function:	Slows down the CPU CLOCK to 8MHz. Provides 2 pins connector to turn off monitor AC power.

1.2 The system block diagram


AT Bus
Address Bus
CPU
80486
245
SA Bus
SD
Bus
85C461
CACHE
RAM
DRAM
Data Bus
85C407
XD Bus
8042
EPROM
VL-Bus

1.3 Placement


8042
JP8
JP10
J1
BAT1
CN1
CN2
JP41
JP40
JP39
JP44
JP43
JP42
P8
P9
1
27512
30
|---> SIM1-8 <---|
85C407
85C461
SIM9,10
JP3
JP2
JP1
U8
U7
U6
U5
U4
U3
U2
U1
U36
JP21
JP38
JP20
JP18
JP16
JP15
P24T
JP5
JP4
JP14
JP13
JP12
JP11
JW1
JW2
JW3
JW4
JW5
KEYLOCK
SPEAKER
RESET
TB.SW
TB.LED

1.4 Function of jumpers and connectors

1.4.1 Jumpers Settings and Connectors

Connector Name	Pin Assignments	Description
External Battery Connector: J1 (4 Pins)	Pin 1: 6V battery input Pin 2: NC. Pin 3: Ground. Pin 4: Ground.	In case the on-board battery is out of work, the user can remove it from the mainboard and connect a 6V external battery to the 4 pin J1
Turbo Connector: JW4 (3 Pins)	Pin 1: +5VDC. Pin 2: Turbo signal. Pin 3: Ground.	1-2 : Low speed mode. 2-3 : Turbo mode.
Turbo LED Connector JW5 (2 Pins)	Pin 1: Anode terminal of LED. Pin 2: Cathode terminal of LED.	If the connection is correct, the turbo LED will light up when the system is in turbo speed mode. Otherwise, the turbo LED will be off.
Hardware Reset Connector: JW3 (2 Pins)	Pin 1: Ground Pin 2: Reset input	Connect this switch to the cable of the chassis' reset button. Press and hold the reset button for at least one second to reset the system.
Keylock and Power LED connector: JW1 (5 Pins)	Pin 1: +5VDC. Pin 2: No connection. Pin 3: Ground. Pin 4: Keyboard inhibit Signal. Pin 5: Ground.	Connect this switch to the cable of the chassis' keylock button.
Speaker connector: JW2 (4 Pins)	Pin 1: Sound signal. Pin 2: Ground. Pin 3: Ground. Pin 4: +5VDC.	Connect to the speaker connector in the front panel of the chassis.
Keyboard connector: CN1 (5 Pins)	Pin 1: Keyboard clock. Pin 2: Keyboard data. Pin 3: No connection. Pin 4: Ground. Pin 5 : +5VDC.	Connect to the Keyboard connector.

Connector Name	Pin Assignments	Function
Power input connector: CN2 (12 Pins)	Pin 1: Powergood. Pin 2: +5V. Pin 3: +12V. Pin 4: -12V. Pin 5: Ground Pin 6: Ground Pin 7: Ground Pin 8: Ground Pin 9: -5V Pin10: +5V Pin11: +5V Pin12: +5V.	Connect to the power connector from the power supply. Usually, the color marking of the power connector cables will be as listed above. Connect the power connector to the exact position. Any mistake will cause the mainboard power supply or add-on card to be damaged.
Monitor AC power connector JP8 (2 Pins)	Pin 1: signal Pin 2: Ground	Connect to Green PC Power supply connector.

Jumper No.	**No. of Pins**		**Description**	**Default Setting**
JP10	3	2-3 1-2	Discharge Normal	1-2
JP13	2	ON OFF	Enable Green PC Disable Green PC	ON
JP9	2		Factory reserved.	ON
JP19	2		Factory reserved.	OFF
JP36	2		Factory reserved.	ON

1.4.2 Installation of DRAMs

In order to provide flexible DRAM configurations between eight 30pin SIMM and two 72pin SIMM, six jumpers are implemented to configure the DRAMs.

Please notify that single side 72pin SIMM is equal to four 30pin SIMM(one bank) and double size 72pin SIMM is equal to eight 30pin SIMM(two banks).

The possible combinations of bank selection are as below:

JP39	**JP40**	**JP41**	**JP42**	**JP43**	**JP44**	**Bank 0**	**Bank 1**	**Bank2**	**Bank3**
*1-2	*1-2	*OFF	*1-2	*1-2	*1-2	SIM1-4	SIM5-8	SIM9(S)	SIM10(S)
1-2	1-2	OFF	1-2	1-2	1-2	SIM1-4	SIM5-8	SIM9(D)	SIM9(D)
2-3	2-3	OFF	2-3	1-2	2-3	SIM9(S)	SIM10(S)	SIM1-4	SIM5-8
2-3	2-3	OFF	2-3	2-3	1-2	SIM9(D)	SIM9(D)	SIM1-4	SIM5-8
2-3	2-3	ON	2-3	2-3	OFF	SIM9(D)	SIM9(D)	SIM10(D)	SIM10(D)
2-3	1-2	OFF	2-3	OFF	OFF	SIM9(S)	SIM5-8	SIM1-4	OFF
1-2	OFF	OFF	1-2	1-2	2-3	SIM1-4	SIM10(S)	SIM9(S)	OFF
1-2	OFF	OFF	1-2	1-2	2-3	SIM1-4	SIM10(S)	SIM9(D)	SIM9(D)
OFF	2-3	ON	2-3	2-3	OFF	SIM9(D)	SIM9(D)	SIM10(S)	SIM5-8

Note: (S) Single side 72pin SIMM
(D) Double side 72pin SIMM
* Default setting
Please refer page 1-3 for the location of 1-4, 5-8, 9, 10.

The following table provides possible DRAM size configuration.

Bank 0	Bank 1	Bank 2	Bank 3	Total
1M				1MB
1M	1M			2MB
1M	1M	4M		6MB
1M	1M	4M	4M	10MB
1M	1M	16M		18MB
4M				4MB
4M	4M			8MB
4M	4M	4M		12MB
4M	4M	4M	4M	16MB
4M	16M			20MB
4M	4M	16M		24MB
4M	16M	16M		36MB
4M	4M	16M	16M	40MB
8M				8MB
8M	8M			16MB
8M	8M	8M		24MB
8M	8M	8M	8M	32MB
16M				16MB
16M	16M			32MB
16M	16M	16M		48MB
16M	16M	16M	16M	64MB

Note: 1MB = 256K x 36bits
4MB = 1M x 36bits
8MB = 2M x 36bits
16MB = 4M x 36bits

1.4.3 Installation of Cache memory

This mainboard supports very flexible Cache SRAM configuration: 128KB, 256KB, and 512KB.

Main Board Cache Size		128KB	256KB	512KB
TAG SRAM	Location	U36		
	Type	8Kx8	32Kx8	
Data SRAM	Location	U2, U4, U6, U8	U1-U8	U2,U4 U6,U8
	Type	32Kx8		128Kx8
Jumper setting	JP1	1-2	2-3	1-2
	JP2	1-2	2-3	1-2
	JP3	2-3	2-3	2-3
	JP20	1-2	2-3	2-3
	JP21	2-3	2-3	2-3
	JP38	1-2	1-2	2-3

1.4.4 Installation of CPU

The mainboard is equipped with a 237 pin socket for various CPUs : 80486 SX/DX/DX2, and 80487SX to be selected by six selection jumpers (JP15-JP16, JP18).

Jumper Setting	486DX/DX2	486SX	487SX
JP15	1-2	2-3	1-2
JP16	1-2	OFF	2-3
JP18	ON	OFF	ON

1.4.5 VL-Bus jumpers (for VESA mode only)

JP5 :	1-2	CPU frequency ≤ 33MHz
	2-3	CPU frequency > 33MHz
JP4 :	1-2	Zero wait write
	2-3	One wait write (default setting)

1.4.6 CPU frequency selection

	25MHz	33MHz	40MHz	50MHz
JP11	OFF	ON	OFF	ON
JP12	ON	ON	OFF	OFF
JP14	ON	OFF	ON	OFF

1.5 Quick reference for installation

Step 1. Please verify the following jumpers:

A. JP10 : A jumper at pin "1-2" for CMOS RAM normal operation.
B. JP15-JP16, JP18 : Make sure the jumper setting is consistent with the installed CPU. (refer section 1.4.4)

Step 2. Connect CN1 to the keyboard.

Step 3. Plug at least 4 DRAM modules into the SIMM sockets SIMM1, SIMM2, SIMM3, and SIMM4.

Step 4. Verify the cache size selection jumpers JP1-JP3, JP20, JP21 (refer section 1.4.3).

Step 5. Connect the following connectors to your case :

A. JW3 to H/W reset button.
B. JW2 to speaker.
C. JW4 to turbo switch.
D. JW5 to turbo LED, the LED will light up.
E. JW1 to keylock.

Step 6. Plug in the display card and HDD/FDD driver card into slots.

Step 7. Connect CN2 to P8 and P9 of power supply.

Step 8. Power on.

Step 9. Enter the “Setup Menu” screen. Select the display type and driver type.

Step 10. Leave the “Setup Menu” screen and then write to CMOS RAM.

Step 11. The system will re-boot.

Step 12. If you can see the DOS prompt shown on the screen, the installation is completed O.K.

Note : If you have any problem during the installation, please refer to chapter 1.4 for the detailed description.

Chapter 2

BIOS Setup

2.1 AMI BIOS Setup

When the system is powered on or reset, the BIOS will display a copyright message on the screen, then the BIOS will perform the diagnostics and initialization. When all of the above tests have been passed, the message

"Press [DEL] key to run SETUP utility."

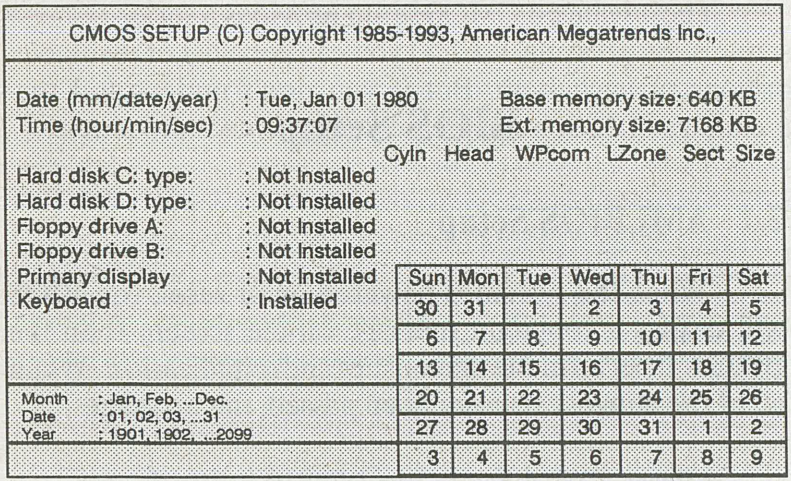
is displayed. If the [DEL] key is pressed, the following messages will be shown:

```
        BIOS SETUP PROGRAM-AMI BIOS SETUP UTILIES
  (C) 1993 American Megatrends Inc., All Rights Reserved

                  STANDARD CMOS SETUP
                  ADVANCED CMOS SETUP
                POWER MANAGEMENT SETUP
          AUTO CONFIGURATION WITH BIOS DEFAULTS
        AUTO CONFIGURATION WITH POWER-ON DEFAULTS
                    CHANGE PASSWORD
                 AUTO DETECT HARD DISK
                   HARD DISK UTILITY
                WRITE TO CMOS AND EXIT
             DO NOT WRITE TO CMOS AND EXIT
```

Figure 2-1 BIOS Setup Main Menu

Use ↓ and ↑ keys to select and press "Enter" to execute the selected item.

2..1.1 Standard CMOS Setup



```
         CMOS SETUP (C) Copyright 1985-1993, American Megatrends Inc.,

Date (mm/date/year)    : Tue, Jan 01 1980          Base memory size: 640 KB
Time (hour/min/sec)    : 09:37:07                  Ext. memory size: 7168 KB
                                        Cyln  Head  WPcom  LZone  Sect  Size
Hard disk C: type:     : Not Installed
Hard disk D: type:     : Not Installed
Floppy drive A:        : Not Installed
Floppy drive B:        : Not Installed
Primary display        : Not Installed  | Sun | Mon | Tue | Wed | Thu | Fri | Sat |
Keyboard               : Installed      |  30 |  31 |   1 |   2 |   3 |   4 |   5 |
                                        |   6 |   7 |   8 |   9 |  10 |  11 |  12 |
                                        |  13 |  14 |  15 |  16 |  17 |  18 |  19 |
Month   : Jan, Feb, ...Dec.             |  20 |  21 |  22 |  23 |  24 |  25 |  26 |
Date    : 01, 02, 03, ...31             |  27 |  28 |  29 |  30 |  31 |   1 |   2 |
Year    : 1901, 1902, ...2099           |   3 |   4 |   5 |   6 |   7 |   8 |   9 |
```

Figure 2-2 Standard CMOS Setup Menu

The operation of the setup program are as follows:

1. Use **arrow** keys to select the entry **: Date, Time, Hard Disk(C/D), Floppy, Display , and Keyboard.**
2. Use **PgUp/PgDn** key to modify of each entry.
3. Use **Esc** to exit.

2.1.2 Advanced CMOS Setup

The advanced CMOS setup provides a series of help screens. By pressing < F1 >, you can get a list of available options of each item. But if you don't understand the meanings of each item, please keep the default values.

```
                    BIOS SETUP PROGRAM-ADVANCED CMOS SETUP
             (C)1993 American Megatrends Inc., All Rights Reserved

Typematic Rate Programming     : Enabled    Adaptor ROM Shadow D000, 32K  : Disabled
Typematic Rate Delay (msec)    : 250        Adaptor ROM Shadow D800, 32K  : Disabled
Typematic Rate (Chars/Sec)     : 30         Adaptor ROM Shadow E000, 32K  : Disabled
Above 1 MB Memory Test         : Disabled   Adaptor ROM Shadow E800, 32K  : Disabled
Memory Test Tick Sound         : Enabled    BootSector Virus Protection   : Disabled
Memory Parity Error Check      : Enabled    IDE Block Mode Transfer       : Disabled
Hit <DEL> Message Display      : Enabled    IDE Standby mode              : Disabled
Hard Disk Type 47 RAM Area     : 0 : 300    Auto Key-Lock Timeout         : Disabled
Wait For <F1> If Any Error     : Enabled    AUTO Config Function          : Enabled
System Boot Up Num Lock        : On         DRAM Speed Option             : Faster
Numeric Processor Test         : Enable     DRAM Write CAS Pulse          : 2T
Floppy Drive Seek At Boot      : Disabled   DRAM Write Cycle              : 1 W/S
System Boot Up Sequence        : A:, C:     Cache Write Cycle Option      : 3T
System Boot Up CPU Speed       : High       Cache Burst Read Cycle        : 1T
External Cache Memory          : Enabled    Bus Clock Frequency Select    : 7.15 MHz
Internal Cache Memory          : Disabled   Video Cacheable Option        : Enabled
Password Checking Option       : Setup      BIOS Cacheable Option         : Enabled
Video    ROM Shadow C000, 32K  : Enabled    Latch Local Bus Device        : T3
Adaptor ROM Shadow C800, 32K   : Disabled   Local Bus Ready               : SYNC
```

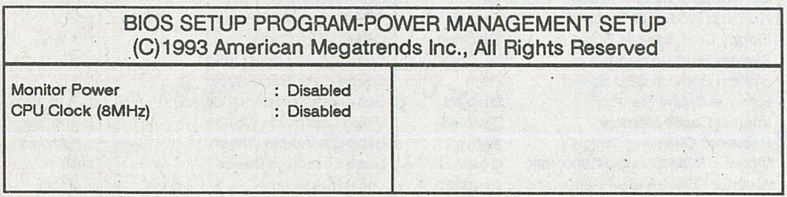
Figure 2-3 Advanced CMOS Setup Menu

2.1.3 Power management Setup

The power management setup is for Green PC energy saving purpose in both Monitor Power item and CPU Clock (8MHz) item. Each item provides the options: Disable and time intervals from 1Min to 255Min.

1) Monitor Power: For this feature to take effect, the system has to equip with Green Power supply. After the time interval the user specified, the monitor will be turned off.

2) CPU Clock(8MHz): This item works with regular CPU. After the time interval the user specified, the CPU frequency will be down to 8MHz.



```
BIOS SETUP PROGRAM-POWER MANAGEMENT SETUP
(C)1993 American Megatrends Inc., All Rights Reserved

Monitor Power                    : Disabled
CPU Clock (8MHz)                 : Disabled
```

Figure 2-4 Power management Setup Menu

Select Hot Keys

1. Use "**Ctrl + Alt + PgDn**" keys : Activate power management function.
2. Use "**Ctrl + Alt + PgUp**" keys : Deactivate power management function.
3. Use "**Ctrl + Alt + Backspace**" keys : Activate password function.
4. Use "**Ctrl + Alt + **" keys : Enter power down mode immediately.

2.1.4 Standard type of hard disk

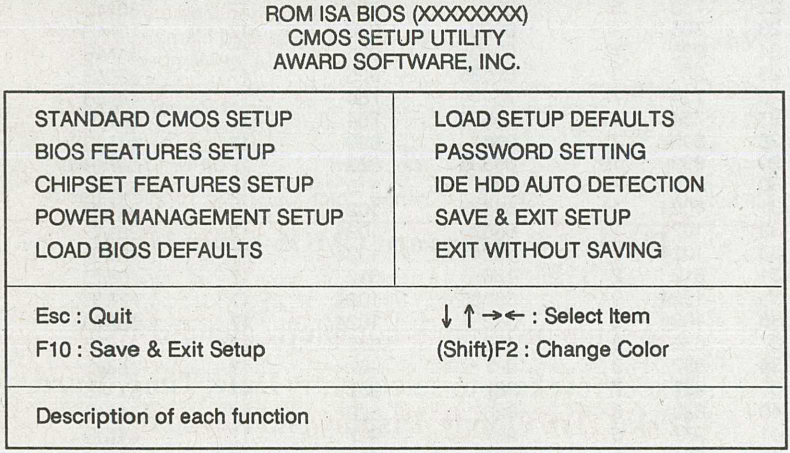
Type	Cyln	Heads	W-Pcomp	L-Zone	Sect	Capacity
1	306	4	128	305	17	10MB
2	615	4	300	615	17	21MB
3	615	6	300	615	17	31MB
4	940	8	512	940	17	62MB
5	940	6	512	940	17	47MB
6	615	4	65535	615	17	20MB
7	462	8	256	511	17	31MB
8	733	5	65535	733	17	30MB
9	900	15	65535	901	17	112MB
10	820	3	65535	820	17	20MB
11	855	5	65535	855	17	35MB
12	855	7	65535	855	17	50MB
13	306	8	128	319	17	20MB
14	733	7	65535	733	17	43MB
16	612	4	0000	663	17	20MB
17	977	5	300	977	17	41MB
18	977	7	65535	977	17	57MB
19	1024	7	512	1023	17	60MB
20	733	5	300	732	17	30MB
21	733	7	300	732	17	43MB
22	733	5	300	733	17	30MB
23	306	4	0000	336	17	10MB
24	925	7	0000	925	17	54MB
25	925	9	65535	925	17	69MB
26	754	7	754	754	17	44MB
27	754	11	65535	754	17	69MB
28	699	7	256	699	17	41MB
29	823	10	65535	823	17	68MB
30	918	7	918	918	17	53MB
31	1024	11	65535	1024	17	94MB
32	1024	15	65535	1024	17	128MB
33	1024	5	1024	1024	17	43MB
34	612	2	128	612	17	10MB
35	1024	9	65535	1024	17	77MB
36	1024	8	512	1024	17	68MB
37	615	8	128	615	17	41MB
38	987	3	987	987	17	25MB
39	987	7	987	987	17	57MB
40	820	6	820	820	17	41MB
41	977	5	977	977	17	41MB
42	981	5	981	981	17	41MB
43	830	7	512	830	17	48MB
44	830	10	65535	830	17	69MB
45	917	15	65535	918	17	114MB
46	1224	15	65535	1223	17	152MB

2.2 Award BIOS Setup

When the system is powered on or reset, the BIOS will display a copyright message on the screen, then the BIOS will perform the system diagnostics tests and initialization. When all of the above tests have been passed, the message

> **"TO ENTER SETUP BEFORE BOOT PRESS CTRL-ALT-ESC OR DEL KEY**

is displayed. If the [del] key or Ctrl-Alt-Esc is pressed, the screen will be cleared and then the following message will be shown:

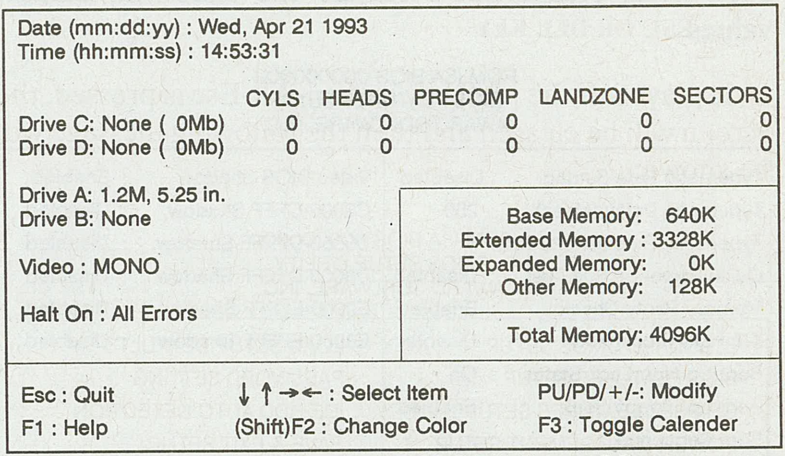


```
                       ROM ISA BIOS (XXXXXXXX)
                         CMOS SETUP UTILITY
                        AWARD SOFTWARE, INC.

 STANDARD CMOS SETUP            LOAD SETUP DEFAULTS
 BIOS FEATURES SETUP            PASSWORD SETTING
 CHIPSET FEATURES SETUP         IDE HDD AUTO DETECTION
 POWER MANAGEMENT SETUP         SAVE & EXIT SETUP
 LOAD BIOS DEFAULTS             EXIT WITHOUT SAVING

 Esc : Quit                     ↓ ↑ →← : Select Item
 F10 : Save & Exit Setup        (Shift)F2 : Change Color

 Description of each function
```

Figure 2-5 Main Menu

2.2.1 Standard CMOS Setup Menu

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.



```
Date (mm:dd:yy) : Wed, Apr 21 1993
Time (hh:mm:ss) : 14:53:31

                              CYLS   HEADS   PRECOMP   LANDZONE   SECTORS
Drive C: None (  0Mb)          0       0        0          0          0
Drive D: None (  0Mb)          0       0        0          0          0

Drive A: 1.2M, 5.25 in.
Drive B: None                                 Base Memory:    640K
                                          Extended Memory : 3328K
Video : MONO                              Expanded Memory:     0K
                                             Other Memory:   128K
Halt On : All Errors                      ________________________
                                             Total Memory:  4096K

Esc : Quit          ↓↑→← : Select Item          PU/PD/+/-: Modify
F1 : Help           (Shift)F2 : Change Color    F3 : Toggle Calender
```

Figure 2-6 Standard CMOS Setup Menu

The setup program is completly menu-driven:

1. Use arrow keys to select entry **Date, Time, Hard Disk(C/D), Floppy, Display** and **Keyboard.**
2. Use **PgUp/PgDn** key to modify the option of each entry.
3. Use **Esc** to exit.

2.2.2 BIOS Features Setup Menu

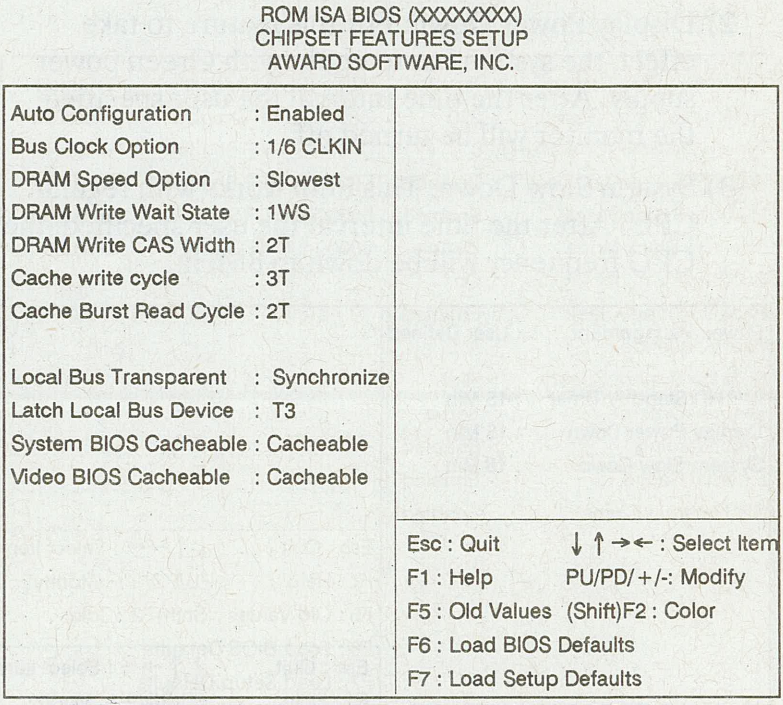
The BIOS Features setup program is equipped with a series of help screens and accessed by the <F1> key, which will display the available options for a particular configuration feature and special help for some of the options. If you don't really understand the meanings of each item, please don't change the following default values.

```
                         ROM ISA BIOS (XXXXXXXX)
                          BIOS FEATURES SETUP
                          AWARD SOFTWARE, INC.
+-----------------------------------------+---------------------------------------+
| Typematic Rate Setting      : Disabled  | Video BIOS Shadow      : Enabled      |
| Typematic Delay (Msec)      : 250       | C8000-CFFF Shadow      : Disabled     |
| Typematic Rate (Chars/Sec): 6           | D0000-D7FFF Shadow     : Disabled     |
| Quick Power on Self Test    : Disabled  | D8000-DFFFF Shadow     : Disabled     |
| Memory Parity Check         : Enabled   | E0000-E7FFF Shadow     : Disabled     |
| IDE HDD Block Mode          : Disabled  | E8000-EFFFF Shadow     : Disabled     |
| Boot Up NumLock Status      : On        |                                       |
| Boot Up Floppy Seek         : Enabled   |                                       |
| Boot Sequence               : A, C      |                                       |
| Boot Up System Speed        : High      |                                       |
| Security Option             : Setup     |                                       |
| Virus Warning               : Enabled   |                                       |
| External Cache              : Enabled   |                                       |
| CPU Internal Cache          : Enabled   |                                       |
|                                         +---------------------------------------+
|                                         | Esc : Quit        ↓↑→← : Select Item  |
|                                         | F1 : Help         PU/PD/+/-: Modify   |
|                                         | F5 : Old Values   (Shift)F2 : Color   |
|                                         | F6 : Load BIOS Defaults               |
|                                         | F7 : Load Setup Defaults              |
+-----------------------------------------+---------------------------------------+
```

Figure 2-7   BIOS Feature Setup

2.2.3 Chipset Features Setup Menu

The Chipset Features setup is entirely chipset specific portion and requires full knowledge about the detailed definition of system chipset. Each option is tightly corresponding with the hardware structure. Without our engineering change notice, we strongly recommend "Do not modify any default setup in this menu".



```
                  ROM ISA BIOS (XXXXXXXX)
                  CHIPSET FEATURES SETUP
                  AWARD SOFTWARE, INC.

Auto Configuration        : Enabled
Bus Clock Option          : 1/6 CLKIN
DRAM Speed Option         : Slowest
DRAM Write Wait State     : 1WS
DRAM Write CAS Width      : 2T
Cache write cycle         : 3T
Cache Burst Read Cycle    : 2T

Local Bus Transparent     :  Synchronize
Latch Local Bus Device    :  T3
System BIOS Cacheable     : Cacheable
Video BIOS Cacheable      : Cacheable

                              Esc : Quit          ↓↑→← : Select Item
                              F1 : Help           PU/PD/+/-: Modify
                              F5 : Old Values     (Shift)F2 : Color
                              F6 : Load BIOS Defaults
                              F7 : Load Setup Defaults
```

Figure 2-8 Chipset Feature Setup Menu

- Used chipset : SIS 85C461 and 85C407

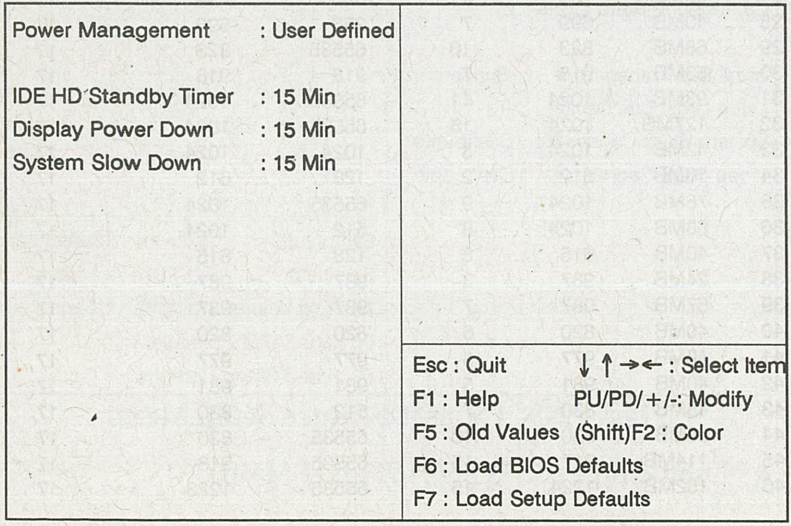
2.2.4 Power Management Setup

The power management setup is for Green PC energy saving purpose in IDE HD Standby Timer item, Display Power Down item and System Slow Down item. Each item provides the options: Disable and time intervals from 1 min to 15 min.

1) IDE HD Standby Timer: This item takes effect only if the system's IDE HDD supports power saving function.

2) Display Power Down: For this feature to take effect, the system has to equip with Green power supply. After the time interval the user specified, the monitor will be turned off.

3) System Slow Down: This item works with regular CPU. After the time interval the user specified, the CPU frequency will be down to 8MHz.



```
Power Management        : User Defined

IDE HD Standby Timer    : 15 Min
Display Power Down      : 15 Min
System Slow Down        : 15 Min
```

Esc : Quit
↓↑→← : Select Item
F1 : Help
PU/PD/+/-: Modify
F5 : Old Values
(Shift)F2 : Color
F6 : Load BIOS Defaults
F7 : Load Setup Defaults

Figure 2-9 Power Management Setup Menu

2.2.5 Standard type of hard disk

Type	Size	Cylinders	Heads	W- Pcomp	L- Zone	Sect
1	10MB	306	4	128	305	17
2	20MB	615	4	300	615	17
3	30MB	615	6	300	615	17
4	62MB	940	8	512	940	17
5	46MB	940	6	512	940	17
6	20MB	615	4	65535	615	17
7	30MB	462	8	256	511	17
8	30MB	733	5	65535	733	17
9	112MB	900	15	65535	901	17
10	20MB	820	3	65535	820	17
11	35MB	855	5	65535	855	17
12	49MB	855	7	65535	855	17
13	20MB	306	8	128	319	17
14	42MB	733	7	65535	733	17
16	20MB	612	4	0000	663	17
17	40MB	977	5	300	977	17
18	56MB	977	7	65535	977	17
19	59MB	1024	7	512	1023	17
20	30MB	733	5	300	732	17
21	42MB	733	7	300	732	17
22	30MB	733	5	300	733	17
23	10MB	306	4	0000	336	17
24	53MB	925	7	0000	925	17
25	69MB	925	9	65535	925	17
26	43MB	754	7	754	754	17
27	68MB	754	11	65535	754	17
28	40MB	699	7	256	699	17
29	68MB	823	10	65535	823	17
30	53MB	918	7	918	918	17
31	93MB	1024	11	65535	1024	17
32	127MB	1024	15	65535	1024	17
33	42MB	1024	5	1024	1024	17
34	10MB	612	2	128	612	17
35	76MB	1024	9	65535	1024	17
36	68MB	1024	8	512	1024	17
37	40MB	615	8	128	615	17
38	24MB	987	3	987	987	17
39	57MB	987	7	987	987	17
40	40MB	820	6	820	820	17
41	40MB	977	5	977	977	17
42	40MB	981	5	981	981	17
43	48MB	830	7	512	830	17
44	68MB	830	10	65535	830	17
45	114MB	917	15	65535	918	17
46	152MB	1224	15	65535	1223	17

PROBLEM REPORT FORM

DATE: / /

COMPANY NAME : TEL:

CONTACT PERSON: FAX:

MODEL NO : ________________

CPU : ________________

COPROCESSOR : ________________

MEMORY : ________________

BIOS : ________________

HDC : ________________

HDD : ________________

VGA CARD : ________________

SOFTWARE : ________________

OTHERS : ________________

PROBLEM DESCRIPTION:

____

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____

____

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Recycled Papers

Part Number: MN-046-B12-81